

### REMARKS

Applicant has amended independent claims 28, 56 and 71 to move a feature found in the preamble to the body of the claim. Applicant contends that this amendment does not necessitate any additional search and merely requires the examiner to clarify the basis for ignoring the claimed features in the obviousness rejections below or in the alternative to drop the obviousness rejections altogether.

Entry of the amendments is warranted because they place the application in condition for allowance or better form for appeal by materially reducing the issues on appeal and were occasioned by the examiner's late and improper reasoning.

The examiner previously argued that Bailis taught the features pertaining to "predicting." After Applicant pointed out the incorrectness of this argument, the examiner resorted to a new line of reasoning that because the word "predicting" appeared in the preamble, it was not therefore entitled to patentable weight. However, the examiner could have and should have raised this issue in the initial office action. Moreover the claim elements in the body of the claim explicitly rely on the feature in the preamble.

Accordingly, entry of the amendment is warranted.

#### 35 U.S.C §112

The Examiner withdrew the rejection of claims 28-48 and 56-82 under 35 U.S.C 112 second paragraph.

#### 35 U.S.C § 103

The Examiner rejected Claims 28-48 and 56-82 for substantially the same reasons as stated in the 26 July 2007 Office Action.

Applicant will address the examiner's response to Applicant's argument below and contends that the claims are also allowable for reasons of record.

Claims 28, 56 and 71

The examiner stated:

7. Applicant first argues on pgs. 14-17 of the 4/2/08 Response that Bailis (sic) does not teach the limitations of independent claims 28 and 56. Examiner disagrees.

(A) Applicant argues that Bailis (sic) fails to teach a method of providing a predicted answer in response to a query from a user. In response to applicant's arguments, the recitation of giving a predicted answer has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). The method steps in claim 28 of retrieving and matching queries do not depend upon the preamble for completeness. The method steps for providing a predicted answer merely recites the purpose of the method but does not add any further completeness to the steps.

(B) Applicant next argues that Bailis fails to teach retrieving a stored query from a cache that stores queries and answers to queries stored from previously completed queries sent to the system (4/2/08 Response; pg. 16). Examiner disagrees. Bailis teaches supplying subsequent identical queries with data from cache instead of re-executing the search of the entire database (Bailis; Col. 4, lines 55-65). Thus, one of ordinary skill in the art would understand this to mean previous queries would be stored cache. Previous queries would have to be stored in order for the system to determine if a subsequent query was identical.

(C) Applicant argues that Bailis fails to teach determining whether at least some fields in the stored query match corresponding fields in the user's query and retrieving an answer corresponding to the stored query from the cache.

Examiner disagrees because Bailis does teach determining whether at least some fields in the stored query match. As indicated earlier, Bailis teaches subsequent identical queries with data from the cache. By teaching matching of identical queries, Bailis inherently teaches matching based on some of the fields.

Matching of some of the fields is inclusive within matching of all of the fields.

Applicant has amended independent claims 28, 56 and 71. The examiner argues that: "In response to applicant's arguments, the recitation of giving a predicted answer has not been given patentable weight because the recitation occurs in the preamble." Applicant has moved the action or instructions, as appropriate, of providing a predicted answer in response to a seat availability query to the body of the claim. In addition, Applicant points out that within each of these claims is the feature of "return the retrieved answer as the predicted answer ... ." Accordingly, the examiner should have and at least must now give patentable weight to features pertaining to "predicted."

The examiner also argues that: "method steps in claim 28 of retrieving and matching queries do not depend upon the preamble for completeness. The method steps for providing a predicted answer merely recites the purpose of the method but does not add any further completeness to the steps." Again the examiner improperly overlooks all of the features of these claims. For instance, claim 28 includes the features of "... retrieve a stored query from a cache that stores seat availability queries and answers ... from previously completed seat availability queries ... and determining whether at least some fields in the stored seat availability query either match or are substantially close in characteristics to corresponding fields in the user's seat availability query."

The examiner has yet to specifically point out where Bailis teaches a cache that stores the query for seat availability answers, as well as, the answers. That is, in claim 28, the cache stores a seat availability answer along with the query that resulted in that answer. A subsequent query for seat availability data is compared to the query to see if the queries are sufficiently close to allow the stored answer to be used as a prediction for how the availability system would answer.

In order to address the glaring deficiency in the examiner's reasoning pertaining to storing the queries, the examiner resorts to a fancifully interpretation of Bailis that results from improper hindsight reconstruction. The examiner attempts to show that the queries are stored with the data, by arguing: "Bailis teaches supplying subsequent identical queries with data from cache instead of re-executing the search of the entire database (Bailis: Col. 4, lines 55-65). Thus, one of ordinary skill in the art would understand this to mean previous queries would be stored cache. Previous queries would have to be stored in order for the system to determine if a subsequent query was identical." However, this reasoning does not square with how Bailis teaches "query concentration." Bailis describes that: "For as long as the data is valid, the database engine supplies subsequent, identical queries with the data from cache instead of reexecuting the search of the database that originally produced the cached results.." So, unlike the examiner proffered reasoning, Bailis does not say that the queries are stored with the data, but that subsequent, identical queries will be serviced with data from the cache, which is how a conventional cache works in this regard. From Bailis there is absolutely no basis for the examiner to argue that previous queries are stored along with the data in the cache.<sup>1</sup>

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<sup>1</sup> Bailis clearly discusses how subsequent, identical queries are serviced from the cache as long as the data is valid the query is serviced from the cache. See Bailis "The validity of the cached data may be determined by the amount of time that has passed since the original query. This time limit may be programmably variable." Col. 2, lines 44-46.

Bailis also discusses a "live query." As discussed in Bailis the live query also is not stored in the cache along with the answer to the query. Rather, the live query is "a standing query which lasts until the query is ended."

Therefore, Bailis neither describes nor suggests storing of the queries along with the data.

The feature of storing of the queries along with the data is related to the prediction aspect of the claim. Whereas, in Bailis there is no provision to use a query in which "at least some fields in the stored seat availability query either match or are substantially close in characteristics," for Applicant's claims such a feature permits the cache to be a predictor.

Bailis would not possibly provide such logic. Were one of ordinary skill be foolish to attempt to modify Bailis to provide the claimed features, it would likely result in havoc in the phone system, for instance for one subscriber's phone number being assigned to a different subscriber or other similar illogical consequences.

#### Claims 29, 30 and 36

The examiner further argues:

8. As per claims 29, 30 and 36, Examiner maintains the data specifically relating to flight travel is non functional descriptive matter. Applicant argues that the data is not non-functional descriptive material because the data does not encompass data such as music, literature, art, photographs and mere arrangements or compilations of facts or data. Examiner disagrees. Examiner believes that the particular type of data does not add to any functionality to the substrate of the method. Furthermore claims 28 and 56 are directed to matching data. Examiner submits that the type of data has no bearing on whether the data matches or not.

Claim 29 further limits claim 28 calling for: "storing queries and answers from previously completed seat availability queries in the cache; and wherein storing queries includes storing one or more query fields for airline name, flight number, origination, destination, date of query, traveler nationality, point of purchase, frequent flyer status and seller data."

The "Examiner believes that the particular type of data does not add to any functionality to the substrate of the method." However, the examiner gives neither reasoning nor authority to support this position. ."

The Patent Office's own guidelines to patenting of Computer related inventions do not support the position taken by the examiner.<sup>2</sup>

Clearly, in the context of the problem being solved by Applicant the features of the specific query fields add "functionality to the substrate of the method." This conclusion follows *inter alia* because given the nature of the problem, in the context of, e.g., air travel, predicting seating availability does not require an exact answer and exact correspondence between stored and executing queries. In contrast, conventional database and cache operation and the operation of the cited reference, require exactness. The lack of exactness, if applied to the prior art reference, would lead to illogical and irrational consequences, as pointed out above.

Accordingly the examiner must give patentable weight to all of these features.

#### Claim 31

The examiner further argues:

9. As per claim 31, Applicant repeats the argument that Bailis does not teach determining whether some of the fields match. Examiner has addressed this argument above and the response is incorporated herein.

The novelty of claim 31 over Bailis resides in the combination of "determining whether at least some of the fields of a stored query matches the user's seat availability query ... comprises parsing the user's availability query into query fields and matching the query fields of the availability query to the query fields stored in the cache database." Bailis neither describes nor suggests determining whether at least some of the fields match. As explained above Bailis sends identical queries. Moreover, Bailis does not have an analog to "matching the query fields.

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<sup>2</sup> "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data. Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se. Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 158384, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). **MANUAL OF PATENT EXAMINING PROCEDURE §2106 page 2100-12 rev. May 20.04**

of the availability query to the query fields stored in the cache database.” Bailis, as discussed above, does not store “the availability query ... in the cache database.”

Accordingly claim 31 further distinguishes over Bailis.

#### Claim 34

The examiner further argues:

**11. As per claim 34, Examiner submits that one of ordinary skill in the art would understand the process of querying, matching queries and sending an answer to be a continual process. The database system of Bailis would be suitable for use in any commercial database engine thus the process would be continual.**

Claim 34 is not anticipated by Bailis, because Bailis neither describes nor suggests “... if the retrieved answer is stale, sending an actual query to the system, returning the actual answer received from the system to the user and storing the actual answer and query in the cache database. The examiner had contended that the claim was taught at column 4, lines 8-14 and column 4, lines 47-49 of Bailis. Apparently, the examiner now considers this to be a “continual process”<sup>3</sup> that is not described by Bailis at column 4, lines 8-14, where the reference discusses operation of the call processing system, not the cache, and at lines 47-49 where Bailis discusses query concentration.

Nowhere however does Bailis teach a mechanism that “... if the retrieved answer is stale, sending an actual query to the system, returning the actual answer received from the system to the user and storing the actual answer and query in the cache database.”

#### Claims 37-44

The examiner further argues:

**12. As per claims 37-44, Examiner maintains that identifying a confidence factor is not functionally related to the substrate of the method. The confidence factor is a statistical measure to determine the reliability of the retrieved matching answer. As stated earlier, the results of matching queries is not functionally affected**

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<sup>3</sup> The examiner appears to argue inherency without so stating.

by the type of data. Thus the determination of a confidence factor is also not functionally affected by the type of data either.

It is apparent that for features that the examiner clearly cannot even make a colorable argument for that the examiner takes one of several courses, either the examiner ignores the limitation, argues that the limitation is not functionally related to the substrate or argues that the limitation is not entitled to patentable weight because it is in the preamble (ignoring however that it is also in the body of the claim).

Claim 37, for instance, calls for the features of: "...returning the retrieved answer as the predicted answer where the predicted answer includes a confidence factor corresponding to the predicted answer; and accepting the predicted answer, or not, based on the confidence factor.

The examiner has already admitted that: "Bailis et al. do not expressly teach including a confidence factor corresponding to the predicted answer." So the examiner improperly chooses to ignore the feature.

The "confidence factor" is functionally related to its substrate, i.e., the method, and therefore must be accorded patentable weight based on the rationale of *In re Lowry* discussed of record. Claim 37 is directed to a method that uses the confidence factor to ascertain whether or not to accept the predicted answer as the answer for the query. Bailis is not faced with this decision because Bailis needs only to show that the answer is found in the cache.

The feature is therefore entitled to patentable weight, because the confidence factor materially modifies the nature of the processing performed by the claimed method. The feature is a factor that is considered by the method in claim 37 to affect the remaining processing of the claim.

Claims 38-44 are allowable because Bailis fails to suggest the features of those claims and the examiner must accord those features patentable weight.

#### Claims 45-48

The examiner further argues:

13. As per claims 45-48, Applicant argues that Bailis does not use a model to indicate an answer is considered stale. However, Bailis does teach a programmable timer that would allow the database to adjust dynamically to changing conditions

(Bailis; Col. 4, lines 62-65). Examiner submits that a programmable timer reads upon a model to determine when an answer is considered stale.

Claim 45, for instance, further distinguishes over Bailis, because Bailis neither describes nor suggests "... predicting produces a confidence factor according to a model using as a factor in the model a threshold time, which if lapsed, indicates that the retrieved answer is considered stale."

The examiner argues that:

27. As per claim 45, Bailis et al. teach the method of claim 42 as described above, wherein predicting produces a confidence factor according to a model using as a factor in the model a threshold time, which if lapsed, indicates that the retrieved answer is considered stale (see column 4, lines 50-54).

Bailis does not teach the confidence factor, as set out and admitted by the examiner above. Bailis also does not use a model to indicate when the answer is considered stale. Bailis mentions that the time period can be determined empirically<sup>4</sup>, and that timer can be programmable<sup>5</sup> but does not mention that any model is involved in determining when an answer is considered stale.

Bailis also does not suggest to use the timer to determine whether or not to send the answer from the cache, but merely teaches: "With reference to FIG. 5, the query results may be saved as long as they are considered valid. According to one embodiment, the validity of the cached data is determined by the amount of time that has passed since the original query results were obtained." Thus, Bailis updates the database based on the timer, but does not use the timer to check if a retrieved result can be sent in response to a query.

Claims 46-48 are allowable because Bailis fails to suggest the features of those claims and the examiner must also accord those features patentable weight.

Claims 56-82 directed to a computer program product and system, are analogues to claim 28, and are allowable for analogous reasons as those given above for corresponding ones of claims 28-48.

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<sup>4</sup> Bailis Col. 4, line 54.

<sup>5</sup> Bailis Col. 4, lines 64-65.



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This Reply is accompanied by a Notice of Appeal.

The fee of \$130 for the Petition for Extension of Time is being paid concurrently on the electronic filing system by way of deposit account authorization. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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